IN3

COSTS ASSOCIATED WITH HCV AND RELATED COMPLICATIONS IN THE UNITED STATES FROM A MANAGED CARE PAYER'S PERSPECTIVE

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OBJECTIVES: Estimate current healthcare costs for HCV and its consequences in a large, US managed care organization (MCO). **METHODS:** Patients with ICD-9 diagnosis codes for Hepatitis C viral (HCV) infection (1st diagnosis=index date), age 18+ years with 6+ months of continuous enrollment were identified in a large, MCO claims database from 1/1/2002 to 3/31/2010. HCV patients were matched 1:~10 to patients without an HCV diagnosis or advanced liver disease (ALD), based on gender, age, index year (where synthetic index date=enrollment + median post-enrollment days to case index date), hospital referral region (HRR) state, pre-index healthcare costs, alcoholism, HIV/AIDS, and modified Charlson Comorbidity Index. Cases were stratified by disease state: chronic HCV without liver involvement (C-HCV), compensated cirrhosis (CC), decompensated cirrhosis (DC), hepatocellular carcinoma (HCC), or liver transplant. Mean per-member per-year (PMPY) costs were estimated post-index (total post-index cost of all patients /[sum of all post-index days/365]). Incremental PMPY costs for HCV patients vs. matched controls were estimated overall and by each disease state. **RESULTS:** 34,597 HCV patients were matched to 330,435 controls. Mean age of cases was 49.9 (±8.5) years; 62% were female; 78% had C-HCV, 4% CC, 12% DC, 3% HCC, and 3% transplant. Incremental costs vs. controls overall were $9,681 PMPY. Incremental PMPY costs for patients with ALD were DC: $27,845, HCC: $43,671, and transplant: $93,609. For patients without ALD, incremental PMPYs were C-HCV: $5,870, and CC: $5,330. Incremental drug costs for HCV treatment were $2,739 overall, ranging from $1,893-$8,736 for different states. C-HCV and CC drug costs were $2,659 and $3,102, respectively. **CONCLUSIONS:** Current estimates of HCV cost burden to MCOs were higher than previously reported and increased substantially with progression to ALD. The higher estimated costs of managing chronic HCV were likely due to high non-liver related costs among HCV patients or imprecise coding of CC.

IN4

CARDIOVASCULAR DISEASE SCREENING IN HIV-INFECTED PATIENTS – A COST-EFFECTIVENESS ANALYSIS

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OBJECTIVES: HIV-infected patients are at an increased risk of cardiovascular diseases (CVD), resulting in the need for integration of CVD screening into HIV treatment guidelines. We evaluated different CVD screening strategies in HIV-infected patients with regard to effectiveness, costs, and cost-effectiveness. **METHODS:** Cost-effectiveness analysis using a microsimulation model reflecting coronary artery disease (CAD), myocardial dysfunction, and heart failure in HIV-positive men. Data sources: Patient-level data from HIV-HEART study, literature, German reimbursement data. Time horizon: Diagnostic phase, lifetime. Perspective: Societal. Interventions: No screening (SOC), ECG+BNP with echocardiography+stress-ECG if pathologic ECG or BNP ("Outpatient"), ECG+BNP+echocardiography+stress-ECG ("Cardiologist"), "Cardiologist" with coronary computed tomography angiography if pathologic echocardiography or stress-ECG ("Cardiologist +"). Outcomes: Diagnostic results, discounted quality-adjusted life expectancy (QALE) and lifetime costs, incremental cost-effectiveness ratio (ICER). **RESULTS:** The initial CAD prevalence in HIV-infected men aged 40 years was estimated at 5.9%. One-time "Outpatient", "Cardiologist", and "Cardiologist +" screenings correctly diagnosed 7, 43, and 48 out of 59 CAD patients per 1,000 patients at €46/person, €109/person, and €429/person, respectively. The expected QALE was estimated at 16.54, 16.56, 16.71, and 16.75 years for SOC, and one-time "Outpatient", "Cardiologist", and "Cardiologist +" screenings at mean lifetime costs per patient of €321,348, €322,279, €327,670, and €328,864, respectively. "Outpatient" and "Cardiologist" were extendedly dominated by "Cardiologist +". The ICER of "Cardiologist +" vs. SOC was €35,791 per quality-adjusted life year (QALY). When screening frequency was varied between one and five years at one-year intervals, "Cardiologist" was extendedly dominated by "Cardiologist +". The predicted ICERs for the non-dominated strategies as compared to SOC were €34,508, €40,489, and €49,373 per QALY for annual "Outpatient" and "Cardiologist +" at 5- and 4-year intervals, respectively. **CONCLUSIONS:** Our preliminary analyses suggest that integrating routine CVD screening into HIV treatment guidelines could be clinically beneficial and cost-effective.

PODIUM SESSION II: IMPACT OF MEDICATION COMPLIANCE

MC1

COMPARISON OF REFILL GAP ANALYSIS METHODOLOGIES IN A POPULATION OF PATIENTS WITH RHEUMATOID ARTHRITIS RECEIVING ADALIMUMAB OR ETANERCEPT

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OBJECTIVES: Adalimumab and etanercept are patient self-administered biologic agents used in rheumatoid arthritis (RA). Prescription refill gap analyses may be conducted to understand patient refill behavior as a proxy for compliance. The objective of this study was to evaluate gaps between prescription refills of adalimumab or etanercept across multiple databases and compare results of different methodologies. **METHODS:** Data were obtained from three retrospective claims databases (HealthCore Integrated Research Database-HIRD [adalimumab or etanercept initiation 07/2004-10/2008], MarketScan Commercial and Medicare Supplemental Claims databases [01/2003-06/2008], and Wolters Kluwer Pharma Solutions-WKPS database [01/2004-12/2008]). Inclusion criteria: ≥18 years old, ≥2 RA diagnosis codes (ICD-9 code 714.xx), no biologic therapy 6 or 12 months prior to current therapy, one year of treatment persistence (HIRD and MarketScan only), and no selected inflammatory conditions. Mean gaps (days) in refills were calculated among all RA patients in MarketScan and WKPS, and calculated among only those patients with ≥1 day of gap in HIRD. Analyses included the first 15 refill periods. **RESULTS:** Data from 15,818 adalimumab and 25,175 etanercept patients were analyzed. Mean adalimumab gaps spanned 1.3 to 8.4 and 6.8 to 11.4 days in MarketScan and WKPS, respectively. Mean adalimumab gaps spanned 17.2 to 33.4 days in HIRD when calculated among only those patients with ≥1 day of gap in refilling. Mean etanercept gaps spanned 1.3 to 10.9, 6.6 to 14.2, and 16.3 to 37.4 days for MarketScan, WKPS, and HIRD, respectively. **CONCLUSIONS:** Results across multiple databases substantiate that refill gaps exist among adalimumab and etanercept users during each refill period. The specific methodology for calculating refill gaps should be considered. The extent of delayed refills may be underestimated when calculated across an entire population, instead of only among those with evidence of a gap. Further research is needed examining clinical and economic consequences associated with therapy gaps.

MC2

ASSESSING PREDICTORS OF MEDICATION ADHERENCE IN UNCONDITIONAL QUANTILE REGRESSION FRAMEWORK

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OBJECTIVES: Medication adherence has been linked to better health outcomes. Therefore, a comprehensive understanding of the predictors of adherence is essential for formulating adherence-improving strategies. Existing methods have not considered evaluation of heterogeneous impacts of predictors at different parts (quantiles) of the adherence distribution as defined by medication possession ratio. Using the novel econometric framework of unconditional quantile regression (UQR), this study assesses the heterogeneity of impacts of adherence predictors for an Alzheimer's disease (AD) population. **METHODS:** This retrospective claims analysis identified AD patients from a large US health plan that initiated oral AD therapy (rivastigmine, donepezil, galantamine, or memantine) between 1/1/2006 and 12/31/2007. Baseline characteristics were assessed during the 6-month pre-index period; medication adherence was assessed during the 1-year post-index period. UQR was estimated at 10^{th}, 20^{th}, . . ., 90^{th} quantiles. Predictors of adherence identified from the data included age, gender, indicator of mental health insurance coverage, region, commercial vs. Medicare insurance, log cost, comorbidity, and formulary tier for the AD medication. **RESULTS:** Baseline medication count was positively associated with adherence ($p<0.05$) in the upper half of the adherence distribution. Having mental health coverage is negatively associated with adherence in all but the 10^{th} and 20^{th} quantiles but the impact was substantially higher in the first half of the adherence distribution. Baseline (log) cost was positively associated with adherence in the 40^{th} and upper quantiles of the adherence distribution. For patients in the 80^{th} and 90^{th} quantiles, the number of baseline office visits predicted lower adherence. Compared to patients from the East, patients from the South were less likely to be adherent in the 60^{th} and 70^{th} quantiles. **CONCLUSIONS:** The study results highlight the heterogeneity of impacts of various adherence predictors – a predictor may be statistically significant only in specific quantiles of the adherence distribution, and the impacts may vary substantially between quantiles.

MC3

IMPACT OF MULTIPLE MEDICATION COMPLIANCE ON CARDIOVASCULAR OUTCOMES IN PATIENTS WITH TYPE II DIABETES AND COMORBID HYPERTENSION CONTROLLING FOR ENDOGENEITY BIAS

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OBJECTIVES: To investigate the impact of multiple medication compliance on the occurrence of cardiovascular disease (CVD) outcomes using instrumental variables (IV) to control for endogeneity bias. **METHODS:** We identified individuals who newly start oral diabetes or hypertension medication therapy between July 2006 and June 2007 with the pre-existing comorbid hypertension or diabetes prescription history during 6 months of pre-index period using administrative claims from a managed care organization in southern California (N=1565). Multiple medication compliance was defined as a proportion of days covered for both diabetes and hypertension medications during three years of follow-up. Cardiovascular outcomes included myocardial infarction, stroke, and peripheral vascular disease. Instrumental variables estimation using physician related variables including a dummy for the same prescribers for both medications, the percentage of follow-up visit per physician, and the percentage of statin prescription per physician was implemented. Parameter estimates were compared using probit and IV-probit models. **RESULTS:** Mean compliances were 0.636 (±0.008) for diabetes medications, 0.686 (±0.008) for hypertension medications, and 0.527 (±0.008) for both medications. After adjusting for age, gender, baseline clinical measures (Hemoglobin A1C, blood pressure, and lipid), pre-existing condition (either diabetes or hypertension), and Elixhauser-comorbidity, adherence to both medications was not significantly associated with decreased CVD rate (−0.070±0.118, p=0.554) based on probit model. After controlling for endogeneity, however, the impact of multiple medication adherence became statistically significant using IV-probit model